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MINERALS PROGRAM
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DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

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May 1, 1989

Mr. Ken A. Kluksdahl
Tenneco Minerals
P.O. Box 2650
955 North 1300 West #4
St. George, Utah 84770

Re: Tenneco Minerals
Gold Strike Mine Phase II
Review Comments

Dear Mr. Kluksdahl:

We have reviewed the plans and specifications submitted for review and have the following comments:

Plans:

Drawing 1 of 4

a. The flow plan for storm water control around the extension pads and around the ore stockpile and crusher pad must be provided.

b. An indication for proper orientation on the site, e.g., North Arrow, must be provided.

c. The overall dimensions of the first and second extension pads must be provided.

d. The routing of process solution piping must be provided for review.

Drawing 2 of 4

a. References in Section A-A, Section B-B, and detail 3 to compacted clay should be replaced with details of the liner and leak detection system.

b. The height of the center berm and barrier berm for the heap leach pad must be specified.

c. The material used to backfill the anchor trench must be compacted.

d. The horizontal dimension of the Barrier Berm must be provided.

e. A dimensional reference must be made between the 4 inch diameter leakage collection pipes and the center mounds. This is to establish proper design so the maximum leakage flow path distance will be established.

f. A leakage collection pipe should be located on the down slope terminus of the leak detection media layer.

g. The horizontal and vertical dimension of the drainage ditch must be provided.

h. The function of the perforated leach lines shown in Detail No. 3 should be presented.

i. Details or specific proceedings for removal of the existing barrier berm located near Detail No. 4 for connection to leach pad extension no. 1 must be provided for review.

j. Additional information about the implementation of the interface between new and existing liner systems located in the area of Detail No. 4 must be provided for review.

Drawing 3 of 4

a. The orientation of the 6 inch perforated leach line shown in Detail No. 4 must be clarified.

b. References in Section C-C, Section D-D, Detail No. 4 and Detail No. 5 to compacted clay should be replaced with details of the liner system.

c. The function of the 6-inch perforated leach lines shown in Detail No. 5 and also in the plan for Leach Pad Extension No. 2 should be presented.

Drawing 4 of 4

a. Details of how process solutions will flow into the solution ditch must be shown.

b. The minimum set back distance of the toe of the ore body from the edge of the liner system must be shown.

c. Each leak detection discharge pipe must have provisions to hold small amounts of leakage (including an overflow device) for routine operations inspection.

d. Access must be provided so the operator may easily inspect the leak detection devices mentioned in (c) above.

Specifications:

a. The specifications must state that the testing laboratory shall insure that all HDPE test coupons shall be adequately cured prior to conducting tests.

b. It is suggested that the clay liner permeability specification should read 2.0 X 10^{-7} centimeters per second or less.

c. The frequency of the moisture content and permeability tests for the clay liner must be specified.

d. The field density test in conjunction with the moisture content test shall be used to evaluate the permeability of the clay liner based upon previously established correlation.

e. The gradation and permeability requirements for the leak detection media must be included in the specifications.

f. The gradation, permeability requirements and statement that the leak detection base be free from pockets and lenses of sand and gravel must be included in the specifications.

g. The thickness, gradation and minimum permeability of the process solution collection system must be included in the specifications.

h. Specification reference 3.3 should be revised to state that the contractor will keep the clay liner surface wet to prevent cracking.

i. Specification reference 3.5 should be revised to state that the HDPE sheets should not be slid over the subgrade.

j. The specification must be revised to state that no folded sheets of HDPE liner will be installed.

k. Specifications reference 4.4 should be clarified to define who will test the other 90% of HDPE test coupons.

l. Differences between detail in drawing 4 of 4 and Serrot Corp. drawing 2-80309/1 must be resolved.

General Comments:

a. The proposal for disposition of sulfide ore and waste will require further discussion and review.

b. The approved operation and maintenance manual, closure plan and contingency plan shall be re-evaluated and appropriate modifications to accommodate the additional pad area made and submitted for review.

c. The maximum particle size of the ore which will be placed in the first lift must be stated.

This concludes our comments, please call Charlie Dietz of my staff if ther are any questions.

Sincerely,

for Don A. Ostler, P.E., Director
Bureau of Water Pollution Control

CGD:ag

cc: Mr. Wayne Thomas, Southwest District Health Dept.
Mr. Bill Dawson, Southwest District Health Dept.
Mr. Lowell Braxton, Division of Oil, Gas & Mining.

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